

**Environmental Assessment  
for  
Improvements to the  
I-195/Taunton Avenue/Warren Avenue Interchange  
East Providence, Rhode Island**



**TECHNICAL MEMORANDUM NO. 4  
WETLANDS, WATER RESOURCES, AND  
WIDLIFE/THREATENED OR ENDANGERED SPECIES**

**Rhode Island Department of Transportation  
and the  
U.S. Department of Transportation  
Federal Highway Administration**

**September 2007**

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## **ENVIRONMENTAL ASSESSMENT For the City of East Providence**

### **Improvements to the I-195/Taunton Avenue/ Warren Avenue Interchange East Providence, Rhode Island**

#### **I. WETLANDS**

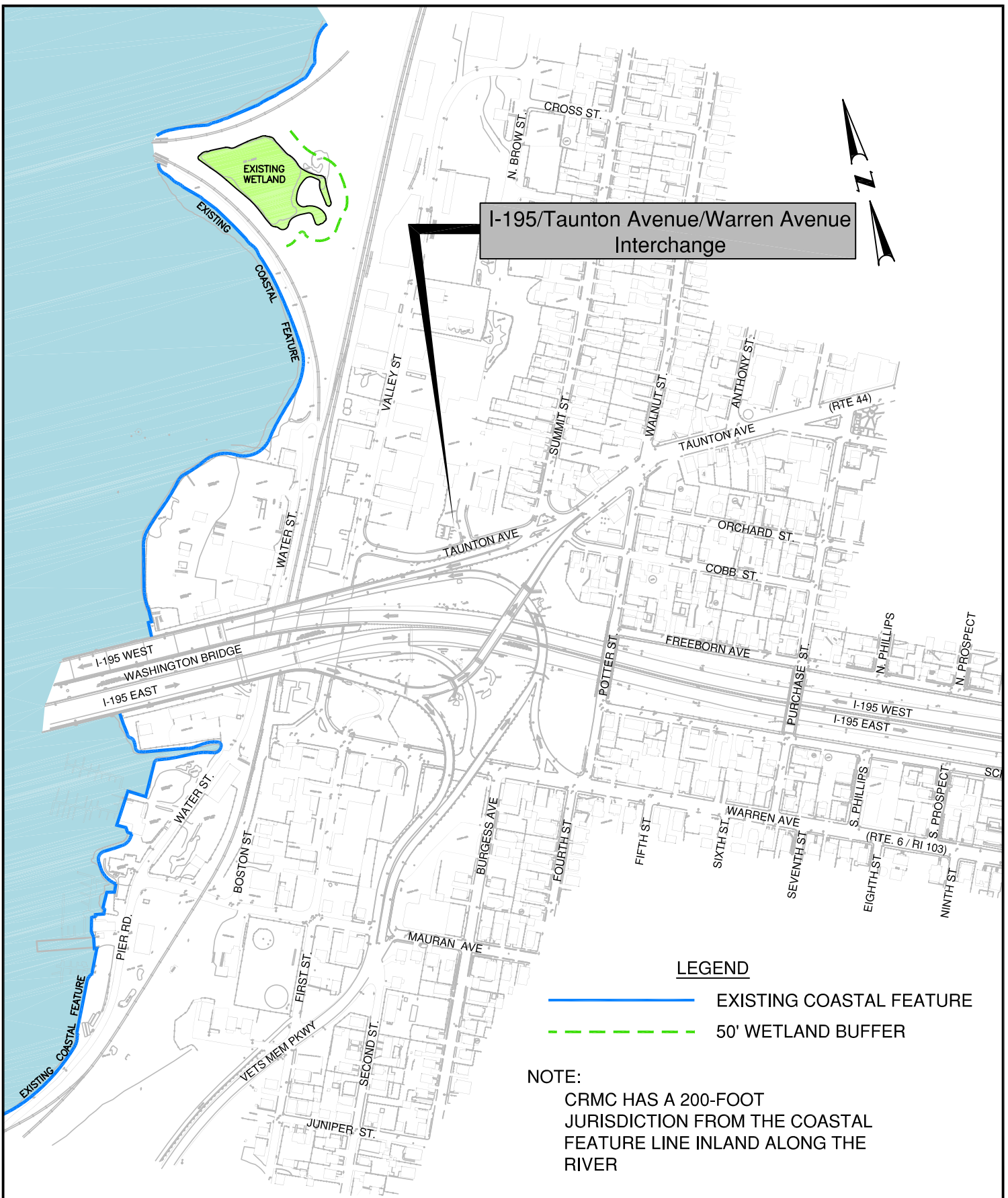
##### **A. Preliminary Wetland Assessment of Project Area**

On March 4, 2005, Applied Bio-Systems, Inc. inspected the land within the proposed project area located east of the approach to the Washington Bridge in East Providence for presence of freshwater / coastal wetland. The wetland inspection was based on field methods employed by the Army Corps of Engineers 1987 Wetland Delineation Manual, RIDEM – Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (April, 1998) and The State of Rhode Island - Coastal Resources Management Program, 1996. It is our determination that wetland areas are present that fall within the Rhode Island Department of Environmental Management, Office of Water Resources, Permitting (RIDEM) and the Coastal Resources Management Council (CRMC) jurisdictions. Please refer to attached copy of 1997 orthophoto with an indication of approximate limits of wetland areas. No other wetland areas were observed within the proposed project limits.

The Seekonk River is defined by the CRMC as a Type 4 Water. Type 4 waters are multipurpose waters which support a variety of commercial and recreational activities while maintaining good value as fish and wildlife habitat (CRMP, Section 200.4). A narrow fringe of salt marsh vegetation was observed along the riverbank in the southern quadrant of the project area. The dominant vegetation within the wetland was salt water cord grass (*Spartina alterniflora*). Moving north located just south of the Washington Bridge is a small segment of stream/drainage channel. The remainder of the shoreline edge is comprised of retaining walls and bulkheads. CRMC would have jurisdiction over the entire riverbank located at either the inland edge of the coastal wetland or the top of bulkhead / retaining walls as observed. In addition, the CRMC jurisdiction will extend 200 feet landward of all inland coastal feature limits.

Any alterations proposed within this area will need prior approval from CRMC. The City of East Providence may have other wetland restrictions. Any alterations within the Seekonk River for proposed drainage or infrastructure would also require a permit from the United States Army Corps of Engineers (USACE).

A freshwater wetland is located within the northern limits of the project area west of Valley Street. A Pond / Forested Wetland complex is located within a triangular piece of land bounded by the former Wye railroad track at Crook Point. The dominant vegetation observed within the wetland included: sensitive fern (*Onoclea sensibilis*), pussy willow (*Salix discolor*), swamp azalea (*Rhododendron viscosum*) and cinnamon fern (*Osmunda cinnamomea*). The Soil Survey of Rhode Island (USDA, 1981) classifies the wetland soil as Udorthents – Urban land complex (UD); moderately well drained to excessively drained soils that have been disturbed by cutting and filling. This wetland is located within RIDEM jurisdiction as shown on the Boundary Map.



It is estimated from the 1997 Orthophoto that the approximate size of the pond is one acre, therefore, there will be a 50 foot Perimeter Wetland jurisdiction extended from the edge of wetland. Any alterations proposed within this area will need prior approval from RIDEM.

Wetland and/or coastal feature delineation will be necessary to proceed with a RIDEM or a CRMC application for any proposed construction.

## II. WILDLIFE ASSESSMENT

This is a strictly urban section of the City of East Providence and the entire project corridor consists of small densely developed residential lots, commercial buildings, and industrial businesses. The wildlife encountered in the project area is species that can withstand the pressure of living in habitats consisting of developed lands with a lot of human disturbance. Little vegetative cover exists for any significant habitat areas. Most of the wildlife activity is found around the residential portions of the corridor. The wildlife observed is testimony to those types of habitats.

Wildlife observed in the project area consists of numerous avian species. The primary avian species noted and probably breeding in the area were rock doves (*Columbia livia*), European starling (*Sturnus vulgaris*), common grackle (*Quiscalus quiscula*), English or house sparrow (*Passer domesticus*), song sparrow (*Melospiza melodia*), chimney swift (*Chaetura pelagica*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), mourning dove (*Zenaida macroura*), common nighthawk (*Chordeilles minor*), and the American crow (*Corvus brachyrhynchos*). An occasional hawk (various species including red-tailed, kestrels, and broad-winged) will be seen in the area hunting for mice and small passerine birds. Herring gulls (*Larus argentatus*) have been observed sitting on the large expansive roofs in commercial and industrial sites. Other species that might be expected in this area would be the killdeer (*Charadrius vociferous*) that tend to use habitats created by man, such as flat rooftops on large commercial buildings; the northern mockingbird (*Mimus polyglottos*), northern cardinal (*Cardinalis cardinalis*), and house finch (*Carpodacus mexicanus*) like urban neighborhoods and use landscape shrubs as nesting habitats. The rock dove (pigeons) mentioned above nest under the bridges and overpasses.

Similarly as with the avian species, the mammalian species that would be living in this area are urban species that can tolerate the presence of manmade landscapes and human disturbance. The larger species would include raccoon (*Procyon lotor*), opossum (*Didelphis marsupialis virginiana*), coyote (*Canis latrans*) and striped skunk (*Mephitis mephitis*). These mammals are all omnivores, scavengers that feed on plant and/or animal material, scouting for garbage in open trash cans and catching rodents. The coyote will prey on small domesticated animals. The adjacent residential areas appear to be well populated with these species. The Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), gray squirrel (*Sciurus carolinensis*), little brown myotis bat (*Myotis lucifugus*) would also be found in this type of environment.

Since 1982, the Providence River north of Conimicut Point in Warwick has been closed to shellfishing by the RIDEM and fishing is limited to recreational use only. However, the Seekonk and Providence Rivers support populations of fish and shellfish. The Essential Fish Habitat Table from the NOAA - National Marine Fisheries Service website indicates the species found within the Providence Harbor south to Warwick.

## Summary of Essential Fish Habitat (EFH) Designation

### 10' x 10' Square Coordinates:

Boundary	North	East	South	West
Coordinate	41° 50.0' N	71° 20.0' W	41° 40.0' N	71° 30.0' W

**Square Description (i.e. habitat, landmarks, coastline markers):** The waters within the square within the Providence River, within Narragansett Bay, affecting all cities, towns, and features within or adjacent to it, from Nayatt Pt. and south of Nayatt, RI., north, as well as from Warwick Pt. north. Also, these waters affect within and around Greenwich Bay, northeast of East Greenwich, RI., and north of Sally Rock Pt. on Potowomut Neck, and all other towns, cities, and features within or adjacent to those waters including Apponaug Cove, Buttonwoods Cove, Brush Neck Cove, and Warwick Cove.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod ( <i>Gadus morhua</i> )				
haddock ( <i>Melanogrammus aeglefinus</i> )		X		
pollock ( <i>Pollachius virens</i> )				
whiting ( <i>Merluccius bilinearis</i> )				
offshore hake ( <i>Merluccius albidus</i> )				
red hake ( <i>Urophycis chuss</i> )		X	X	X
white hake ( <i>Urophycis tenuis</i> )				
redfish ( <i>Sebastes fasciatus</i> )	n/a			
witch flounder ( <i>Glyptocephalus cynoglossus</i> )				
winter flounder ( <i>Pleuronectes americanus</i> )	X	X	X	X
yellowtail flounder ( <i>Pleuronectes ferruginea</i> )				

windowpane flounder ( <i>Scophthalmus aquosus</i> )	X	X	X	X
American plaice ( <i>Hippoglossoides platessoides</i> )		X	X	X
ocean pout ( <i>Macrozoarces americanus</i> )				
Atlantic halibut ( <i>Hippoglossus hippoglossus</i> )				
Atlantic sea scallop ( <i>Placopecten magellanicus</i> )				
Atlantic sea herring ( <i>Clupea harengus</i> )		X	X	X
monkfish ( <i>Lophius americanus</i> )				
bluefish ( <i>Pomatomus saltatrix</i> )			X	X
long finned squid ( <i>Loligo pealei</i> )	n/a	n/a		
short finned squid ( <i>Illex illecebrosus</i> )	n/a	n/a		
Atlantic butterfish ( <i>Peprilus triacanthus</i> )				
Atlantic mackerel ( <i>Scomber scombrus</i> )	X	X	X	X
summer flounder ( <i>Paralichthys dentatus</i> )		X	X	X
scup ( <i>Stenotomus chrysops</i> )	X	X	X	X
black sea bass ( <i>Centropristus striata</i> )	n/a		X	X
surf clam ( <i>Spisula solidissima</i> )	n/a	n/a		
ocean quahog ( <i>Artica islandica</i> )	n/a	n/a		
spiny dogfish ( <i>Squalus acanthias</i> )	n/a	n/a		



tilefish ( <i>Lopholatilus chamaeleonticeps</i> )				
king mackerel ( <i>Scomberomorus cavalla</i> )	X	X	X	X
Spanish mackerel ( <i>Scomberomorus maculatus</i> )	X	X	X	X
cobia ( <i>Rachycentron canadum</i> )	X	X	X	X

Small eastern oysters (*Crossostrea virginica*) are still observed along the Seekonk River shoreline in the project area. In the early 1900's one of the buildings to the south of the Bridge was called the Oyster House and tons of oysters were processed there. During the mid-1900's the oyster fishery collapsed and has not successfully recovered anywhere within Narragansett Bay. There is no other available data on other shellfish species found within the waters of the project area.

### III. WATER QUALITY CHARACTERISTICS

Improvements to the I-195/Taunton Avenue/Warren Avenue interchange would have potential impacts to the water quality characteristics of the Seekonk and Providence Rivers, due to the close proximity of both of these water bodies to the project site. For the purpose of this report, both of these rivers were evaluated with respect to the following documents:

State of Rhode Island 2004 Section 305(b) State of the State Waters Report

State of Rhode Island, RIDEM Division of Water Resources: Water Quality Regulations, Latest amendment June 23, 2000

State of Rhode Island 2002, 303(d) List of Impaired Waters

State of Rhode Island 2004, 303(d) DRAFT List of Impaired Waters

Providence Harbor: A Special Area Management Plan, 1983, CRMC

The following is a summary of the applicable information gathered from the above documents.

#### A. State of Rhode Island 2004 Section 305(b) State of the State Waters Report

The State of the State Waters Report deals with the assessment of surface waters and water quality conditions in the state as well as providing a review of the state's water pollution control program.

#### Goals of the 305(b) report

The Federal Clean Water Act (CWA) requires each state to assess the health of their surface waters and submit biennial reports describing the water quality conditions to the USEPA. This process is the principal means by which the state, the EPA, and the public evaluate, maintain and restore water quality. Section 305(b) of the CWA requires that states assess their water quality for attainment of the fishable and swimmable goals of the CWA.

The state measures attainment of the CWA goals by determining how well the waters support their designated uses. Assessments are made on individual designated uses that included: aquatic life, swimming, drinking water, fish consumption and shellfishing. The data used to generate the information for the 2004 report are generally from 1998 through 2002. Some data collected during 2003 was also available for incorporation.

The State of the State Waters Report assesses the pollutants and other causes (stressors) that contribute to the actual or threatened impairment of designated uses in a waterbody or waterbody segment. These stressors and pollutants are listed, if information is available. In addition, the sources, or activities, facilities, or conditions that contribute, or may contribute pollutants to the impairment of a waterbody or waterbody segment, are also listed if information is available. In general, the actual sources of impairment are not determined until a TMDL (Total Maximum Daily Load) is conducted on the waterbody. Common stressors or pollutants include metals, pathogens and nutrients. Potential major sources include municipal and industrial discharges, CSOs, and nonpoint sources such as stormwater runoff and failed septic systems.

**Project relevance:** The improvement project for the I-195/Taunton Avenue/Warren Avenue interchange will need to address the goals of the 305(b) report with respect to the control of nonpoint sources of pollution in surface water and stormwater runoff.

### **Waterbody Assessments**

The Providence and Seekonk Rivers are considered estuarine water bodies and would thus fall under the assessments for estuarine waters. The majority of Rhode Island's estuarine waters have current monitoring data for pathogens to assess for swimming and shellfishing use. Recent dissolved oxygen surveys have been conducted throughout the Bay. Although limited, the data has been used to assess for aquatic life use support status.

The major impacts on designated uses for the estuarine waters of Rhode Island are due to bacterial contamination, low dissolved oxygen and nutrient enrichment. Combined sewer overflows (CSOs), urban runoff and point source discharges are sources of the nutrient enrichment and low dissolved oxygen problem in Narragansett Bay.

The Narragansett Bay watershed is one of the most densely populated estuarine systems in the country. Population density within the Bay basin affects both the volumes of water use and ultimate wastewater discharge. The largest volumes of wastewater, industrial wastewater and industrial-derived toxic pollutants enter Narragansett Bay at the mouths of the Blackstone, Pawtuxet, Providence-Seekonk, and Taunton Rivers. As per monitoring by the Narragansett Bay Estuarine Program (NBEP), the greatest pollution levels occur at the mouth of the bay in the waters of the Providence and Seekonk Rivers.

Toxic pollutant loadings to the Bay are decreasing due to tight environmental regulations covering industrial and municipal discharges. A 90% decrease over the last decade in toxic metal concentrations

in the wastewater going into the Bay has been documented by the pretreatment program at the Narragansett Bay Commission Waste Water Treatment facility (WWTF).

From 1985 to 1992, the U.S. EPA and the State of Rhode Island invested several million dollars in research, resulting in a Comprehensive Conservation and Management Plan (CCMP) for the Bay. By federal mandate, a Comprehensive Conservation and Management Plan was created for each estuary and its watershed. Among the CCMP goals are the prevention of further degradation of estuarine waters, the effective management of commercially, recreationally and ecologically important estuarine-dependent living resources in estuarine waters and the incremental improvement of water quality in coastal areas. Table 3F-6 is taken from the State of the State Waters Report provides a summary of bay problems in the Providence-Seekonk Rivers region.

**Project relevance:** Any improvements to the I-195/Taunton Avenue/Warren Avenue interchange would need to meet the CCMP goals for the estuarine waters of the Providence and Seekonk Rivers. In addition, the proposed improvements will need to evaluate potential major sources of pollutants which might discharge into these waterbodies. The most likely pollutant sources would be non-point sources of pollution in stormwater and surface water runoff. Possible pollutants might include oils, road salts, metals and other pathogens. In table 3F-6, problem number 3 indicates that contaminated sediments are a major issue for this region. The proposed interchange improvements will need to implement measures that contain and reduce the potential toxic pollutants that are generated from surface and stormwater runoff.

### **Point Source Water Pollution Control Programs and Water Quality Certification**

The Rhode Island Department of Environmental Management, Office of Water Resources (OWR) implements water pollution control programs through its two sections: Surface Water Protection and Groundwater and Wetlands Protection. The state's Water Quality Standards Program is fundamental to surface water protection. This program ensures compliance with various provisions of the Federal Clean Water Act (CWA).

The major programs administered through OWR that control water pollution includes the RIPDES Program, the Stormwater Program, the Pretreatment Program and the Wastewater Treatment Facilities Program. In addition, Water Quality Certification is administered through the OWR.

The OWR is delegated to administer the National Pollutant Discharge Elimination System (NPDES) program which is implemented through the OWR as the Rhode Island Pollutant Discharge Elimination System Program (RIPDES). This is the key element in the state's water pollution control strategy. The focus of the RIPDES Program has shifted from a treatment technology based permitting approach used in the past, to the development of water quality based permit limitations that ensure that the receiving water will comply with applicable water quality criteria.

The OWR initiated a Stormwater Permitting Program in 1992 using funds from EPA's Section 104(b)(3). Stormwater regulations and general permits for discharges of stormwater associated with industrial activity and construction activity disturbing greater than 5 acres became effective March 1993. The OWR continues to permit both construction activities and industrial facilities under these permits. In February 2003, the RIPDES regulations were amended to include EPA's

Phase II stormwater regulations that cover operators of small separate storm water systems (MS4s) in “urbanized areas” (UAs) as defined by the Bureau of the Census as well as construction activities disturbing equal to or greater than 1 acre and less than 5 acres.

The Pretreatment Program prevents industrial discharges from interfering with the operation of municipal wastewater treatment facilities and/or causing the facility to violate its discharge limits. This program is not applicable to the interchange project.

The Wastewater Treatment Facilities Program within the OWR consists of operation and maintenance (O&M) and design sections which conduct inspections and compliance evaluations at all major and minor municipal facilities to ensure conformance with permit requirements as well as issuing Orders of Approval for operation and maintenance manuals and review operation failures that result in permit violations. This program is not applicable to the interchange project.

The OWR - Freshwater Wetlands and Groundwater Section administers the Water Quality Certification Program, required by Section 401 of the Clean Water Act. This program ensures that certain types of projects; e.g. construction projects, do not adversely impact the quality of the state’s water resources. It provides a key mechanism for enforcing antidegradation policies embodied in the state water quality regulations. The WQC review consists of an evaluation of compliance with water quality standards, especially designated uses. Included in the certification review process are activities such as dredging projects, fill projects, site disturbances, marina construction or expansion, flow alterations and harbor management plans. The recent Water Quality Regulation triennial review adopted new processing procedures for WQC approvals.

**Project relevance:** The I-195 improvements project will need to apply for a RIPDES and Stormwater permits as well as a Water Quality Certification permit through the Office of Water Resources (OWR). The permits and accompanying plans will need to illustrate that the construction and implementation of this project will not adversely impact the quality of the state’s water resources in the upper Narragansett Bay areas of the Providence and Seekonk Rivers. The

### **Nonpoint Source Pollution Management Program**

The RIDEM’s Nonpoint Source Pollution Management Program was established in accordance with Section 319 of the Water Quality Act of 1987. This non-regulatory program is administered by the Office of Water Resources (OWR). This Program implements the Nonpoint Source Management Plan with the goals of mitigating existing and preventing subsequent nonpoint source pollution.

Over the past year, the Program has been involved in a number of key activities including: (1) Septic System Management; (2) Storm Water Management and Integration with RIPDES Phase II; (3) support of TMDLs; and (4) solicitation of community projects through a competitive granting process.

Maintaining or restoring state waters to their desired condition requires that dispersed sources of pollution, known as “non-point pollution sources”, be abated and controlled. According to the State of the State Waters Report, the water quality problems identified in many watersheds are attributable largely to non-point pollution sources. Current data indicates that the most serious non-point pollution concerns with respect to surface water appear to be septic systems, stormwater discharges and erosion.

**Project Relevance:** The I-195 project will need to look carefully at potential non-point sources of pollution from both the construction process and the final completed project. Erosion and sediment control measures will need to be shown on the design drawings submitted for the RIDPES and Water Quality Certification applications as well as any CRMC applications.

### **Water Quality Monitoring Programs**

The Office of Water Resources' (OWR) surface water monitoring program is designed to gather state-wide baseline data as well as obtain targeted monitoring information. This baseline data is used in establishing and reviewing the state's water quality standards. In addition, the data helps to evaluate progress toward achieving the state and federal water quality goals, and supplies information for use in development of permit limits for wastewater discharges and total maximum daily loads (TMDLs).

Current surface water monitoring programs include activities conducted by the OWR staff as well as monitoring carried out by other agencies/organizations under contracts with OWR. The surface water monitoring program consists of targeted station sites, intensive surveys, special studies, and volunteer monitoring programs.

The OWR is involved in watershed monitoring projects on over 30 waterbodies. These projects are in accordance with the Department's initiation of a Watershed Approach and total maximum daily load (TMDL) development. Surface water monitoring activities are also conducted by many Citizens Monitoring groups. These groups supply the OWR with supplemental water quality data for numerous rivers, lakes, ponds and estuarine waters of the state

**Project relevance:** Although no permitting is required for this program, the proposed interchange project is within an area that is monitored under the Water Quality Monitoring Program. Thus, every attempt should be made to design the project so that there are minimal impacts, both the long-term and short term, on the water quality (TMDLs) in the project area.

### **Coordination with other Agencies**

The Office of Water Resources coordinates activities with various other federal, state and local agencies and organizations. This coordination takes a number of different forms including permitting review coordination. In addition to EPA, examples of coordination relevant to this project are as follows:

- a Coastal Resources Management Council –OWR coordinates with CRMC on various matters including permit coordination, aquaculture, SAM Plan revisions, septic system matters and the pending establishment of a jurisdictional line between the agencies with respect to freshwater wetlands jurisdiction.
- b Department of Health (DOH) - DOH assists the OWR in issuance of fish advisories and development of human health water quality criteria and risk assessments for consumption of contaminated fish in addition to assessments of drinking water supplies for the Section 305(b) Report.
- c US Geological Survey (USGS\_ - The Office will continue to use the services of the USGS for monitoring of flow and chemical analyses within rivers in Rhode Island.

- d Army Corps of Engineers (ACOE) – OWR participates in the Providence River Dredging Project Workgroup being coordinated by ACOE. OWR also coordinates with ACOE on programmatic general permit (PGP) process and habitat restoration projects.

### **Special State Concerns**

There are a number of special concerns listed in the Water Pollution Control Program Section of the State of the State Waters Report. Items of concern include nutrients and dissolved oxygen levels in Narragansett Bay, pollution from combined sewer overflows (CSOs), monitoring needs, watershed restoration measures, non-point sources of pollution, sediments from toxics and dredging, habitat restoration, low-flow impacts, and funding of municipal pollution abatement needs.

**Project relevance:** Those issues and concerns relevant to this interchange project may include:

- a Watershed Restoration – Developing TMDLs - Restoring the quality of rivers, lakes and coastal waters to support their designated uses has emerged as a state priority. Accomplishing actual restoration remains a significant challenge. The draft 2004 303(d) list for Rhode Island includes 137 waterbody listings for a range of impairments. The most common impairments involve nutrients, metals and pathogens. Working within available resources, DEM and its contractors are conducting assessments of impaired waters pursuant to an aggressive schedule. The assessments and corresponding restoration plans, known as Total Daily Maximum Load (TMDLs), provide the technical basis for investing in pollution abatement.
- b Nonpoint Source Pollution – Stormwater - Untreated stormwater discharges constitute a second major NPS pollution concern in RI. Runoff from a wide range of land uses can contribute to water quality degradation. Given the density and pattern of development in the state, strategies to address stormwater management must involve both prevention and abatement. Nonpoint Source Pollution control measures should be incorporated into the plans for the interchange improvement project.
- c Habitat Restoration – Coastal and Inland Habitat restoration has become increasingly important on the national and local level, especially as studies across the country reveal how much of these resources we have lost or degraded. Here in R.I., we have lost 37% of all coastal wetlands that existed in colonial times (from 102,000 acres down to 65,000 acres). Both freshwater wetlands and coastal marshes have been impacted from nonpoint source pollution and sedimentation as well as lost to land development. State agencies are collaborating with a wide range of partners to develop habitat restoration strategies for coastal habitats as well as freshwater wetlands. The interchange project should assess whether inland habitat restoration will be an applicable part of the planning and design.

**B. State of Rhode Island, RIDEM Division of Water Resources: Water Quality Regulations, Latest amendment June 23, 2000**

The Rhode Island Water Quality Regulations classify and describe the waterbodies in the state as well as provide state water quality standards which define water quality goals for the state's waters by deciding what their uses will be (designated uses) and by setting criteria necessary to protect those uses. The Water Quality Regulations also ensure state compliance with the various provisions of the Federal Clean Water Act and outline the approvals necessary for any project that may impact water quality, as well as the application and review procedures for these approvals.

**Waterbody Classification**

The waterbody classification listing for the Providence and Seekonk Rivers is noted in both the State of Rhode Island Water Quality Regulations and the geographical/numerical waterbody listing in Section 305(b) State of the State's Waters Report. Both the Providence and Seekonk Rivers are situated geographically in the Narragansett Bay Basin and are identified as follows:

<u>Waterbody ID Number</u>	<u>Description of Area</u>
RI0007019	Seekonk River from the Slater Mill dam at Main Street in Pawtucket to India Point in Providence. Pawtucket and Providence.

Classification and Partial Uses: SB1 (a)

RI0007020	Providence River from its confluence with the Moshassuck and Woonasquatucket Rivers in Providence south to a line extending from a point on shore due east of Naushon Avenue in Warwick to the western terminus of Beach Road in East Providence, including Watchemoket Cove, East Providence, Providence, Cranston and Warwick.
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Classification and Partial Uses: SB1 (a)

All surface waters of the state of Rhode Island have been categorized according to the water use classifications of rule 8.B of the state's Water Quality Regulations and are based on considerations of public health, recreation, propagation and protection of fish and wildlife, and economic and social benefit. The class is identified by the most sensitive, and therefore governing, uses to be protected. Surface waters are regulated to protect and enhance the designated uses despite the fact that they may be suitable for other beneficial uses. The water quality classifications denote the water quality goals for the water body and not the present conditions.

The water use classifications for the Providence and Seekonk Rivers as noted above are SB1 (a). SB1 is a Seawater classification defined as follows:

These waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation, and industrial cooling. These waters shall have good aesthetic value. Primary contact

recreational activities may be impacted due to pathogens from approved wastewater discharges. However, all Class SB criteria must be met.

The (a) notation indicates a partial use designation due to impacts from CSOs. According to rule 8.b.(3) of the State of Rhode Island Water Quality Regulations, the Department of Environmental Management may assign a partial use subcategory to a waterbody segment where waters are affected by combined sewer overflows (CSOs) or mooring fields. A partial use designation may affect the application criteria. For the (a) notation, these waters will likely be impacted by combined sewer overflows in accordance with approved CSO Facilities Plans and in compliance with rule 19.E.1 of the State of Rhode Island Water Quality Regulations and the Rhode Island CSO Policy. Therefore, primary contact recreational activities; shellfishing uses; and fish and wildlife habitat will likely be restricted.

The general minimum criteria for all waters of the state include pollution levels, aesthetics, radioactive substances, nutrients, thermal mixing zones, and non-thermal mixing zones. All waters must meet these minimum criteria as well as the criteria specified for their individual class which may be more stringent. The general minimum criteria are defined in Rule 8.D of the State of Rhode Island Water Quality Regulations and are summarized as follows:

1. **Pollution:** All waters shall be free of pollutants in concentrations or combinations or from anthropogenic activities so that adverse affects are not dealt to the composition of fish and wildlife; to the physical, chemical, or biological integrity of the habitat; there is no interference with the propagation of fish and wildlife; there is no adverse alteration in the life cycle functions, uses, processes and activities of fish and wildlife; or no adverse affects on human health.
2. **Aesthetics:** All waters shall be free from pollutants in concentrations or combinations so that deposits do not settle to form unsightly and odorous areas that interfere with existing or designated uses; materials or pollutants do not float on the water surface and create a nuisance; pollutants do not create an odor or cause water color to change; or that pollutants result in the dominance of species of fish and wildlife to such a degree as to create a nuisance or interfere with the existing or designated uses.
3. **Radioactive substances** - The level of radioactive materials in all waters shall not be in concentrations or combinations which will likely be harmful to humans, fish and wildlife, or result in concentrations in organisms producing undesirable conditions.
4. **Nutrients** - Nutrients shall not exceed the limitations specified in rule 8.D. (2) and 8.D. (3) and/or more stringent site-specific limits necessary to prevent or minimize accelerated or cultural eutrophication.
5. **Thermal Mixing Zones** – Both the Providence and Seekonk Rivers are tidal estuaries. If thermal mixing zones are allowed by the Director of the Department of Environmental Management, the mixing zone will be limited to no more than one quarter (1/4) of the cross sectional area and/or volume of river flow, leaving at least three quarters (3/4) free as a zone of passage. In wider portions of these rivers, the limits of mixing zones will be established by the Director.
6. **Non-thermal Mixing Zones** - Non-thermal discharges may be applied by the RIDEM Director on a case by case basis, particularly in a limited acute and/or chronic mixing zone. The locations, size and shape of these zones shall provide for the maximum protection of fish and wildlife. At a minimum, all mixing zones must: Meet the criteria for aesthetics, in accordance with rule 8.D.(1).b; Be limited to an area or volume that will prevent interference with the existing and designated uses in the associated waterbody



segment and beyond; Allow an appropriate zone of passage for migrating fish and other organisms, prohibit lethality to organisms passing through the mixing zone, and protect for spawning and nursery habitat; and not allow substances to accumulate in sediments, fish and wildlife or food chains such that known or predicted safe exposure levels for the health of humans or fish and wildlife will be exceeded.

The class specific criteria for Water classification SB1 (a) are more stringent than the above noted general criteria. These are listed on the following Table as Class-specific Criteria for Seawaters. This Table is taken directly from the State of Rhode Island Water Quality Report, Amended June 2000.

**Project relevance:** The relevant criteria that will need to be addressed for this interchange improvement project would be those class-specific criteria listed on the table as well as items 1 and 2 of the general criteria list.

### **Approvals**

Rule 13 of the Rhode Island Water Quality Regulations state that “No person shall discharge any pollutant into, or conduct any activity which will likely cause or contribute pollution to the waters of the State or construct, install, or modify any treatment works including the extension of sewers to an existing sewer system without having obtained all required approvals from the Director.”

The following approvals are required for projects impacting water quality:

- 1) Rhode Island Pollutant Discharge Elimination System (RIPDES) permit by DEM, Office of Water Resources (OWR) in accordance with the RIPDES Regulations.
- 2) Order of Approval from DEM, Water Resources for any treatment works in accordance with rules 14 - 17 of the state Water Quality Regulations.
- 3) Water Quality Certificate - certain activities require approval in the form of a certification by DEM, Water Resources

**Project relevance:** The I-195 interchange improvement project will require approvals for items 1 and 2 above. RIPDES approval is required to ensure that the project does not adversely impact the water quality in the nearby waters through non-point sources of pollution. A Water Quality Certificate is required since the project falls under the activities in bb and cc below:

“Site Disturbances which have the potential to contribute increased pollutants to a Water of the State, specifically:

aa. Residential development of six (6) or more units;

bb. Any commercial, industrial, state or municipal land development; or

cc. any project which disturbs five (5) or more acres

Note that for item cc above, the permit required under the Rhode Island Pollutant Discharge Elimination System Regulations may act as the Water Quality Certification for the discharge.

### **C. State of Rhode Island 2002, 303(d) List of Impaired Waters**

The 303 (d) list is part of a process laid out in the Clean Water Act (CWA) which requires all states to identify and list impaired waters ( that is waters that do not meet Water Quality Standards with existing required technology-based pollution controls alone) in the state's 303(d) list. There are also other requirements under the CWA as noted below:

1. Establish water quality standards (WQS) (including Water Use Classification and class-specific water quality criteria) for the state's surface waters;
2. Monitor water quality conditions of the state's waters (i.e. lakes, ponds, rivers, streams, estuaries and other marine waters);
3. Set priority rankings (a schedule for development of total maximum daily loads(TMDLs)) for all impaired waters included on the 303(d) list;
4. Determine TMDLs that establish acceptable pollutant loads from both point and non-point sources of pollution which allow the impaired waterbody to meet WQS for each listed waterbody and each cause of impairment;
5. Submit the 303(d) list and all TMDLs to U.S. Environmental Protection Agency for approval; and
6. Incorporate TMDLs into the state's continuing planning process.

The 303(d) list is compiled by the RIDEM's Office of Water Resources (OWR) and is based on their most recently completed comprehensive assessment of water quality conditions as assessed in the State of the State Waters Report. The 303(d) list identifies impaired waterbodies and provides a scheduled time frame for the development of Total Maximum Daily Loads (TMDLs).

The 303(d) list is used to help prioritize the State's water quality monitoring and restoration planning activities. The scheduling is not representative of the severity of water quality impacts, but rather reflects the priority given for TMDL development with consideration to shellfishing waters, drinking water supplies and other areas identified by the public as high priority areas.

The following five (5) groups, developed for use in the 1998 303(d) list, are utilized in the 2002 303(d) list to describe the appropriate place in the TMDL process for each waterbody:

Group 1 - (TMDL Underway) - These waters are not meeting Rhode Island Water Quality Standards and TMDL development is currently underway.

Group 2 - (TMDL Planned) - These waters are not meeting Rhode Island Water Quality Standards and TMDL development is planned for the future.

Group 3 - (Dissolved Metals Data Needed) - Monitoring data for metals for these waters show violations of criteria however, all data is expressed as total metals.

Based on 1997 amendments to Rhode Island's WQS, metals criteria are now expressed as dissolved. Therefore, it is not known whether these waters have metal violations based on dissolved criteria. Additional sampling is required to make this assessment.

Group 4 - (Insufficient Data Available) - Assessments were made based on insufficient data and/or data that is old. Therefore, these waters need further monitoring to determine if there are WQS violations.

Group 5 - (TMDL or Equivalent Control Action Developed) - A TMDL, or a control action functionally equivalent to a TMDL, has been developed for these waterbodies. Implementation is underway which will result in attainment of the standards. However, the standards will not be met within the next two years. For control actions functionally equivalent to a TMDL, a determination must be made that the identified impairment is caused by the source(s) to be controlled; examples of "functionally equivalent" control actions include RIPDES permits requiring advanced treatment at wastewater treatment facilities and "Records of Decision" at hazardous waste sites.

Each waterbody or segment is assigned a waterbody identification number for purposes of tracking - for example, to assist with water quality assessments, mapping, reporting, or ultimately, trend analysis. The waterbodies are organized according to Rhode Island's ten major drainage basins. Since some waterbodies may be listed in more than one group, an index is included which records each waterbody that is on the list, the cause of impairment for the waterbody and the associated group(s). In addition, a table of the summary of changes from the 2000 303(d) list and TMDL development schedule by watershed is included.

The Providence and Seekonk Rivers fall within the Narragansett River Basin. They are identified by the following waterbody ID's:

RI0007019E-01 Seekonk River

RI0007020E- 01A and 01B Providence River

In 2002, the causes of the TMDLs with the group numbers identifying the appropriate TMDL process are as follows:

RI0007019E-01 Seekonk River	Nutrients, Low dissolved oxygen, Excess algal growth/CHL-A	Group 1
	Pathogens	Group 5
RI0007020E- 01A Providence River	Excess algal growth/CHL-A, Low dissolved oxygen, nutrients	Group 1
	Metals	Group 3
	Pathogens	Group 5
RI0007020E- 01B Providence River	Low dissolved oxygen, nutrients	Group 1

Metals	Group 3
Pathogens	Group 5

On the Final 2002 303(d) Impaired Waters list, both the Seekonk and the Providence Rivers had a calendar year target date for TMDL of 2002-2004.

According to the 2004 DRAFT List of Impaired Waters and communication with both RIDEM Office of Water Resources and the Narragansett Bay Commission, the Providence River is in the process of being de-listed as an impaired waterbody for metals, as it meets water quality criteria. The Seekonk River is not an impaired waterbody for metals, according to RIDEM. The Providence and Seekonk Rivers are listed for bacteria due principally, to these waters receiving periodic combined sewer overflows. The Narragansett Bay Commission through its ongoing CSO Remediation project is addressing these bacteria pollutants.

The DRAFT 2004 303 (d) listing shows these improvements as follows:

RI0007019E-01 Seekonk River	Nutrients, Low dissolved oxygen, Excess algal growth/CHL-A	Group 1
	Pathogens	Group 5
RI0007020E- 01A Providence River	Excess algal growth/CHL-A, Low dissolved oxygen, nutrients	Group 1
	Pathogens	Group 5
RI0007020E- 01B Providence River	Low dissolved oxygen, nutrients	Group 1
	Pathogens	Group 5

**Project relevance:** With the de-listing of the Providence River as being impaired for metals (pathogens) and with the continued improvements in the water quality to both the Providence and Seekonk Rivers as a result of the Narragansett Bay Commission's CSO Remediation Project, it is imperative that and planning for the Route I-195/Taunton Avenue/Warren Avenue Interchange Improvements project, carefully identify and address the potential sources for pollutants so that the water quality of these waterbodies is not further impaired. Plans should adequately address measures for containing or remediating bacteria, metals and other pollutants that could possibly run off via surface or stormwater into the watersheds for both of these waterbodies.